Case Reports

A CASE OF THROMBO-ANGEITIS OBLITERANS*

ARCHIBALD MALLOCH, M.D., M.R.C.P. (*Lond.*)

Assistant Physician, Royal Victoria Hospital, Montreal

The patient, N. C., a Polish Hebrew, is 39 years of age, by occupation a tailor's machinist, requiring to control a machine by his feet. He came to Canada nearly twenty years ago. His general health has been good and he remembers no other disease except measles as a child and gonorrhoea at the age of twenty. He smokes six to eight cigarettes a day and therefore cannot be said to be a heavy smoker. He takes but little alcohol. His diet consists of "ordinary Canadian meals" and he eats little meat; he is not very fond of sweet things. His father died at the age of thirty-seven (pneumonia?). His mother is alive and well at sixty-five. He is out of touch with some of his sisters and his brother, but has not heard of their suffering from any symptoms similar to his own. His wife is alive and well; she has had two children and no miscarriages.

In the autumn of 1920 he was troubled for about five weeks with a feeling of coldness in the little finger of his left hand. There was no change in colour, but the hand was swollen the next day. After a month or so the same sensations were experienced in the right hand also. These were accompanied by swelling and sweating. He has had some difficulty in keeping his hands warm, especially the right first and little fingers, which become white as he rests them on the machine. I may remark that the history given above was elicited only after he had been asked if he had had anything wrong with his hand.

On several occasions in 1921, while in bed at night, he suffered from "pins and needles" along the inner aspect of the right hallux and the inner side of his foot. There was no swelling and no change in colour.

In September, 1922, the little toe of his right foot became painful from no apparent cause such as the squeezing of a tight boot. There was no reddening or discharge but the nail seemed to be loose. At another hospital half of the toe nail was removed and some soft "matter" came away also. Healing was apparently good. Soon after this, his right knee began to ache especially on walking; this lasted for three or four days only.

On February 11th, 1922, he was admitted to this hospital under the care of Dr. Turner, complaining bitterly of pain in the little toe of his right foot, and this had to be amputated for infective gangrene. Healing was prompt and he was discharged on November 17th, with instructions to return to Surgical Out-Patient's for observation.

Since that time has noticed that the tips of nearly all his toes, especially the right hallux, have become red, and he has found that his toes turn blue on putting them into cold water. He has not been troubled with sweating of the feet. Since last autumn, the patient has had increasing discomfort in the calves and feet on walking, so that after going for two or three streets he has had to stop and stand first on one foot and then on the other for a minute or so at a time to ease the pain.

He was admitted again to this hospital under Dr. Turner, on May 26th, as the little toe of his left foot had become much more painful and was of a bluish-red colour.

The patient is a fairly well nourished and healthy looking Hebrew, and when lying in bed or in a wheel chair appears to be suffering no pain. There is no fever and the pulse is not increased. His teeth are in fair condition; the molars on both sides below are false. The pharynx is negative. There is no enlargement of the lymph nodes except the inguinal and femoral on both sides. The respiratory system is negative, the heart is not enlarged, the apex being in the fifth interspace, 8 cm. to the left of the mid line; the second sound at the aortic area is not accentuated. The abdomen is negative, the spleen is not palpable. The urine on June 2nd showed a specific gravity of 1,015, was acid, and no albumen or sugar were present, and no casts or pus cells were seen. Examination of the faeces was negative. There are no deformities about the joints. He is rather highly strung and all the reflexes are very active; otherwise the nervous system is negative.

There is some depression of the longitudinal

*The patient was shown during a "Clinical day" (June 5 h, 1923) for the American Orthopaedic Association.

arches but the striking thing on examination of the feet, as the patient lies in bed, is the red and shining tips of his toes. The left little toe is bluish at the tip and this colour extends up for a short distance on either side. The skin on the inner aspect of this toe is broken. The feet are not swollen in this position and they are of normal colour. There is some cracking of the skin close to the nails. Dilated venules are visible on the outer side of the right ankle joint. The veins on the dorsal aspect are not prominent unless the feet are allowed to hang down over the edge of the bed, when, in less than a minute, they become very congested, stand out prominently, and the tips of the toes appear cyanotic, especially the left little one which becomes bluish-black in colour. When brought back to the horizontal position the feet assume the same colour as before in about a minute and a half. On elevating the legs vertically, the balls of the toes blanch in about one and half minute's time. Several minutes in the horizontal position, however, give to them the same colour as before. The right foot is a little cooler than the left; there is no sweating. Sensation to touch, pain, heat, and cold is not impaired. There is no tenderness, except in the left little toe. The superficial veins of the leg are not dilated and show no varicosity.

Pulsation in the femoral arteries is easily felt, but not so readily in the popliteal. Pulsation is very slight in the posterior tibials and the walls of the vessels here seem thickened. Pulsation in the left dorsalis pedis is felt, but not in the right one. The brachial arteries pulsate visibly, but the blood pressure, recorded by Dr. Hudson and myself on several occasions, is only 126-70 on the right side and 120-70 on the left. The radial arteries are not sclerosed. It is a much more difficult matter to take readings over the popliteals, but we agree on 180-120 for the right one, and 160-100 for the left. A skiagram of the legs shows no visible vessels between the knees and the ankles.

The red blood cells are 4,000,000 per cmm. Haemoglobin 80%; white blood cells, 8,000; differential count shows relative increase of lymphocytes, (polymorphs, 48%, lymphocytes, 42%, large mononuclears, 6%, eosinophiles, 3%, basophiles, 1%). Dr. T. R. Waugh reports that the viscosity of the blood is moderately high, the coagulation time is four minutes (within normal limits), the bleeding time is slightly decreased, and the blood platelets show no increase (in number, 290,000 per cmm.) and are uniform. The Wassermann test of the blood is negative.

The amount of sugar in the blood was determined by Dr. MacIntosh, of Dr. E. H. Mason's metabolism department, before and after the ingestion of a hundred grams of glucose. The curve shows a very slight decrease in carbohydrate tolerance, not more pronounced than in some quite normal individuals.

Diagnosis.—The patient is a comparatively young Polish Jew, and in the absence of syphilis, of kidney, heart, or generalized arterial, disease, and when diabetes can be excluded and the attacks are not typical Reynaud's disease, we think this is a case of thrombo-angeitis obliterans (or Buerger's disease) involving the deeper vessels of the feet.

Comment.—It is a disease almost peculiar to Polish or Roumanian Jews between the ages of twenty and forty, most of whom are heavy cigarette smokers. Leo Buerger described it in 1908 and wrote a good paper on the pathology in 1917. The cause is not definitely known, but it is thought to be toxic or infectious. The signs and symptoms are due to the gradual cutting off of the blood supply, the lesion in the first instance being an acute inflammatory process involving all the vascular coats of the deeper arteries and veins. Thrombosis follows, the thrombus is organized, and later perhaps canalized. Unlike arteriosclerosis, there is little or no permanent change in the media; later there is extensive periarteritis and periphlebitis, and the fibrous tissue may involve the accompanying nerves. A hypoplasia of the peripheral vessels has been noted in some specimens examined after amputation. The peripheral vessels of the upper limbs are occasionally thrombosed.

The course is variable and there may be intermissions when the circulation is re-established to some extent, but ultimately the clot generally reaches as high as the popliteal artery, but rarely as high as the femoral or iliac vessels. Gangrene of course follows the thrombosis.

Treatment.—This on the whole is unsatisfactory. All possible methods of sustaining the circulation in the legs and feet should be tried, Bier's treatment has helped in some cases. The operation of sympathectomy is advocated by some authorities. Meyer tries to reduce the increased viscosity of the blood by giving eight to ten quarts of Ringer solution daily through a duodenal tube. It is probably wise to reduce

the carbohydrate intake as decreased sugar tolerance is present in many cases.

In the subsequent discussion, one surgeon reported a good result after sympathectomy, and another had achieved some success with a combination of Meyer's method of treatment and the exhibition of increasing doses of the nitrites.

Further note on the case.—The late Dr. A. E. Garrow provided me with the following note:

"Handley's operation was performed on June 21st, 1923, under spinal anaesthesia. This involved exposing the femoral artery on the inside of the upper part of Hunter's canal for a length of three inches.

The portion of artery uncovered was rough, reddened and adherent to the surrounding connective tissue canal, whereas the vein was smooth, non-adherent, and showed no evidence of periphlebitis. Feeble pulsation was felt on palpation, but none seen on inspection. Five drops of 85% alcohol were injected into the adventitia of the artery at five equi-distant parts of the circumference of the vessel producing thereby a swollen, white tubular band, one and a half inches in length which completely surrounded the vessel. Hunter's canal was closed by cat-gut sutures, the sartorius muscle replaced and the skin wound closed by silk sutures."

At the end of forty-eight hours the pain in the foot had very largely subsided and the colour of the toes had assumed a more normal appearance, the glazed condition becoming dull. On July 13th the patient was discharged from the hospital. He reported to the Surgical Out Door department on July 19th, and Dr. F. McKenty noted that "examination of the toes shows marked improvement and the discolouration has nearly all disappeared. There is a slight difference in the temperature of the skin of the feet, the right being warmer. The fifth toe on the left side shows no evidence of previous gangrene."

The patient has not come again to the hospital and on enquiry it is found that he went to California six months ago.

A MIXED CELL SARCOMA OF THE KIDNEY IN A CHILD ELEVEN MONTHS OLD

F. M. Fry, M.D.

Montreal

Patient.—Percy Maynard, aged eleven months, was admitted to the Children's Out-Door Department of the Royal Victoria Hospital on May 1st, 1911.

Complaints.—(Given by the mother), lump in the left side.

Personal History:—A full term child, seven pounds at birth apparently normal. No breast feeding. Horlick's Malted Milk was given exclusively in first eleven months. First tooth appeared at ten months. Had chicken-pox. Slight bronchitis two weeks ago.

Present Illness:—Two weeks ago a physician on examining the child found a mass in the left flank and the mother promptly brought him to the Royal Victoria Hospital. There is no history of passing red urine, or any disturbance whatever.

Family History.—Father and mother well. No history of tuberculosis, miscarriages, or cancer. Patient is the only child.

Present Condition.—A well nourished child. T. 99, P. 112, R. 28. All systems negative. Urine acid, clear amber, 1030, no albumin, no sugar. Microscopically: no red blood corpuscles, few pus cells and slight epithelial debris. No general lymphadenitis.

Examination.—On examination of the abdomen a hard mass about the size of one's fist was readily found in the left upper quadrant, which bulged markedly more prominently than the right. This mass is roughly quadrilateral and extremely hard. It moves vertically up and down with respiration, has no notch apparently and bowel tympany can be demonstrated in front of the mass. Sarcoma of the kidney seemed the only diagnosis possible. Liver negative.

He was transferred to Dr. Garrow's service who, a week later, removed the tumour and Dr. Gruner of the Pathological Department pronounced it on microscopic section a mixed-celled sarcoma.

Recovery was uninterrupted and he was discharged well on June 15th (five weeks after operation).

He was re-admitted November 7th, 1914, T. 102, P. 125, R. 44, and found to have pleural effusion which one feared indicated metastasis. Thoracentesis, however, revealed a clear straw-coloured fluid (ʒ vi) of high specific gravity, no blood; no growth on ascitic fluid, no tbc. bacilli, antiformin method. Of 200 cells counted there were:

Polymorphonuclears, 4.5%.
Endothelial cells, 7.5%
Lymphocytes, 88%.

No sarcoma or cancer cells.